

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

**Claims 1-10 (canceled)**

1           **Claim 11 (original):** A regenerative optical amplifier  
2           comprising:

3           a resonator having first and second reflective mirrors  
4           forming ends of a roundtrip path for light, and an  
5           amplifying portion for amplifying light in said roundtrip  
6           path;

7           first and second Pockels cells respectively provided  
8           on first and second reflective mirror sides; and

9           first and second polarizers respectively provided  
10          between said first and second Pockels cells and said  
11          amplifying portion; wherein

12          said first polarizer reflects light of a first  
13          polarization toward said first Pockels cell;

14          said first Pockels cell is driven by application of  
15          voltage sufficient to rotate the polarization of  
16          transmitted light by 90 degrees in the time from when said  
17          light of a first polarization has passed through until it  
18          returns via said first reflective mirror, so as to convert  
19          light of said first polarization into light of a second

20 polarization, said applied voltage being maintained for a  
21 predetermined period so as to rotate the polarization of  
22 transmitted light by 90 degrees; and

23 said second Pockels cell is driven by application of  
24 voltage when extracting amplified light amplified by making  
25 a roundtrip of said amplifying portion from said resonator,  
26 so as to convert said amplified light to amplified light of  
27 said first polarization;

28 the amplified light of said first polarization being  
29 reflected by said second polarizer to be extracted outside  
30 of said resonator.

1 **Claim 12 (original):** A regenerative optical amplifier  
2 comprising:

3 a resonator having first and second reflective mirrors  
4 forming ends of a roundtrip path for light, and an  
5 amplifying portion for amplifying light in said roundtrip  
6 path;

7 first and second Pockels cells respectively provided  
8 on first and second reflective mirror sides;

9 first and second polarizers respectively provided  
10 between said first and second Pockels cells and said  
11 amplifying portion; and

12 a waveplate provided between said first Pockels cell  
13 and said first reflective mirror, for rotating the  
14 polarization of light by 90 degrees with each roundtrip;

15        wherein

16                said first polarizer reflects light of a first  
17        polarization toward said first Pockels cell;

18                said first Pockels cell is driven by application of  
19        voltage sufficient to rotate the polarization of  
20        transmitted light by 45 degrees in the time from when said  
21        light of a first polarization has been reflected at said  
22        first reflective mirror and completed one roundtrip of said  
23        first Pockels cell and said waveplate, been converted to  
24        light of a second polarization and completed a roundtrip of  
25        said amplifying portion side until it returns said first  
26        Pockels cell, so as to convert light of said first  
27        polarization into light of a second polarization, said  
28        applied voltage being maintained for a predetermined period  
29        so as to rotate the polarization of transmitted light by 45  
30        degrees; and

31                said second Pockels cell is driven by application of  
32        voltage when extracting amplified light amplified by making  
33        a roundtrip of said amplifying portion from said resonator,  
34        so as to convert said amplified light to amplified light of  
35        said first polarization;

36                the amplified light of said first polarization being  
37        reflected by said second polarizer to be extracted outside  
38        of said resonator.

1                **Claim 13 (original):** A regenerative optical amplifier

2 comprising:

3 a resonator having first and second reflective mirrors  
4 forming ends of a roundtrip path for light, and an  
5 amplifying portion for amplifying light in said roundtrip  
6 path;

7 a first Pockels cell provided on said first reflective  
8 mirror side, whose optical axis is tilted in a direction  
9 such as to rotate the polarization of light by 45 degrees  
10 with each roundtrip;

11 a second Pockels cell provided on the second mirror  
12 side; and

13 first and second polarizers respectively provided  
14 between said first and second Pockels cells and said  
15 amplifying portion; wherein

16 said first polarizer reflects light of a first  
17 polarization toward said first Pockels cell;

18 said first Pockels cell is driven by application of  
19 voltage sufficient to rotate the polarization of  
20 transmitted light by 45 degrees in the time from when said  
21 light of a first polarization has been reflected at said  
22 first reflective mirror and completed one roundtrip of said  
23 first Pockels cell and said waveplate, been converted to  
24 light of a second polarization and completed a roundtrip of  
25 said amplifying portion side until it returns to said first  
26 Pockels cell, so as to convert light of said first  
27 polarization into light of a second polarization, said

28 applied voltage being maintained for a predetermined period  
29 so as to rotate the polarization of transmitted light by  
30 180 degrees; and

31 said second Pockels cell is driven by application of  
32 voltage when extracting amplified light amplified by making  
33 a roundtrip of said amplifying portion from said resonator,  
34 so as to convert said amplified light to amplified light of  
35 said first polarization;

36 the amplified light of said first polarization being  
37 reflected by said second polarizer to be extracted outside  
38 of said resonator.

1 **Claim 14 (original):** A regenerative optical amplifier  
2 in accordance with claim 11, wherein said second Pockels  
3 cell is driven by application of a voltage sufficient to  
4 rotate the polarization of transmitted light by 90 degrees  
5 in the time from when said amplified light has passed until  
6 it returns via said second reflective mirror so as to  
7 convert said amplified light into amplified light of said  
8 first polarization.

1 **Claim 15 (original):** A regenerative optical amplifier  
2 in accordance with claim 11, wherein said second Pockels  
3 cell is driven by application of a voltage sufficient to  
4 rotate to polarization of transmitted light by 45 degrees  
5 from the time when light which has made a roundtrip of said

6        amplifying portion to become said amplified light has  
7        completed a roundtrip until prior to said amplified light  
8        passing through so as to convert said amplified light into  
9        amplified light of said first polarization.